# Visualizing and Quantifying Drug Distribution in Tissue VI

Kin F. Chan Conor L. Evans Editors

22-27 January 2022 San Francisco, California, United States

Sponsored and Published by SPIE

**Volume 11938** 

Proceedings of SPIE, 1605-7422, V. 11938

Visualizing and Quantifying Drug Distribution in Tissue VI, edited by Kin Foong Chan, Conor L. Evans, Proc. of SPIE Vol. 11938, 1193801 © 2022 SPIE · 1605-7422 · doi: 10.1117/12.2634593

The papers in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. Additional papers and presentation recordings may be available online in the SPIE Digital Library at SPIEDigitalLibrary.org.

The papers reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from these proceedings: Author(s), "Title of Paper," in *Visualizing and Quantifying Drug Distribution in Tissue VI*, edited by Kin F. Chan, Conor L. Evans, Proc. of SPIE 11938, Seven-digit Article CID Number (DD/MM/YYYY); (DOI URL).

ISSN: 1605-7422

ISSN: 2410-9045 (electronic)

ISBN: 9781510647473

ISBN: 9781510647480 (electronic)

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time)

SPIE.org

Copyright © 2022 Society of Photo-Optical Instrumentation Engineers (SPIE).

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of fees. To obtain permission to use and share articles in this volume, visit Copyright Clearance Center at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher.

Printed in the United States of America by Curran Associates, Inc., under license from SPIE.

Publication of record for individual papers is online in the SPIE Digital Library.



Paper Numbering: A unique citation identifier (CID) number is assigned to each article in the Proceedings of SPIE at the time of publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online and print versions of the publication. SPIE uses a seven-digit CID article numbering system structured as follows:

- The first five digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc. The CID Number appears on each page of the manuscript.

## **Contents**

iv Conference Committee

|          | PHARMACOKINETIC AND PHARMACODYNAMIC TOMOGRAPHY IN TRANSLATIONAL RESEARCH  |
|----------|---|
| 11938 02 | A survey of imaging mass spectrometry methods in the pharmaceutical industry: initial steps to establishing best practices for use in a regulated environment (Invited Paper) [11938-1] |
| 11938 03 | Image analysis of erythema for quantitative evaluation of photosensitivity in photodynamic therapy [11938-4]  |
|          | NOVEL MODEL AND SCREENING TOOLS FOR DRUG DEVELOPMENT  |
| 11938 04 | Theranostic laser system for multi-function drug activation and monitoring [11938-14]   |
|          | ADVANCED METHODS IN DRUG DETECTION AND IMAGING  |
| 11938 05 | Nonlinear unmixing to account for blood absorption in multispectral imaging for improved quantification of intracellular and extracellular EGFR [11938-18]                              |
| 11938 06 | Measurement of intact and dissociated porphyrin-lipid nanoparticle concentration in tissue using diffuse reflectance and fluorescence spectroscopy [11938-19]                           |
| 11938 07 | Photoacoustic imaging-guided therapy using dual pH/ultrasound-responsive extracellular vesicle-based nanosonosensitizers [11938-20]   |
| 11938 08 | Development of an NIR imaging technique in ex-vivo studies for needle-free jet injection systems [11938-21]   |

### **Conference Committee**

#### Symposium Chairs

**Jennifer Barton**, The University of Arizona (United States) **Wolfgang Drexler**, Medical University of Vienna (Austria)

#### Program Track Chairs

 Brian Jet-Fei Wong, Beckman Laser Institute and Medical Clinic, University of California, Irvine (United States)
Eva M. Sevick, The University of Texas Health Science Center at Houston (United States)

#### Conference Chairs

**Kin F. Chan**, Simpson Interventions, Inc. (United States) **Conor L. Evans**, Wellman Center for Photomedicine (United States)

#### Conference Program Committee

**Zane A. Arp**, U.S. Food and Drug Administration (United States) **Eric G. Solon**, Madrigal Pharmaceuticals, Inc. (United States) **Alex J. Walsh**, Morgridge Institute for Research (United States) **Cristina L. Zavaleta**, The University of Southern California (United States)